AUTODESK UNIVERSITY

CP500680

# Products with Cultural Identity: connecting design, technology & tradition

Alex Lobos
Rochester Institute of Technology

## Learning Objectives

- Create products with a strong cultural identity.
- Integrate elements of tradition and technology into your designs.
- Develop products that are more diverse and inclusive.
- Integrate effective tools within Fusion 360 for design and fabrication (CAD/CAM).

## Description

When designing new products, it is easy to focus on new technologies and futuristic forms, overseeing cultural heritage. This talk explores how to take advantage of new cutting-edge tools for designing, making, using and connecting products, while maintaining a strong connection with the user's cultural identity. An example of this process is Checho, a voice-controlled smart home hub that plays music, answers questions, and performs multiple tasks in and around the home, similar to Amazon Echo and Google Home. What makes Checho unique is its relation to Latinx culture. It's made out of solid wood and accentuated with traditional Guatemalan fabric, which conceals its high-tech internal components. Checho was designed with Fusion 360, and fabricated via CNC milling, reinforcing the concept of using advanced tools without compromising traditional cultural identity. For more details on Checho, visit: https://www.behance.net/gallery/138275859/Checho-Traditional-smart-hub

## Speaker

Alex is an industrial designer and educator focused in sustainable design, emotional attachment and CAD applications. He is Graduate Director and Professor and Industrial Design at Rochester Institute of Technology, New York. At Autodesk, Alex is a Research Fellow Emeritus, Expert Elite for Fusion 360, member of Autodesk University's Advisory Council, AU Featured Speaker and recipient of Fusion 360's Education Award.
For more info go to: https://www.rit.edu/artdesign/directory/aflfaa-alex-lobos

## The presence of smart products in the home

Smart products are becoming a key component of our daily life. They influence and often improve the way we interact with the world around us. This interaction occurs with living and non-living things, and with natural and human-made environments. Smart products allow us to enhance functionality, connectivity and data management to most activities and experiences.

When looking at the way that smart products are designed, there seems to be and frequent effort in highlighting their high-tech features. It is common to see smart products with clean, sleek, minimal lines, bold colors such as black or white, and abundant lights (often blue), digital displays and touchscreens. When thinking about how this aesthetic came to be, it becomes clear that past interpretations of the future influenced how products look today. 2001: Space Odyssey (Image 1), Star Wars, Star Trek, and other similar space-related films showed products with a clean, bold, futuristic aesthetic, which is not part of the identity of electronic devices.

*Image 1: 2001: Space Odyssey shows in one of its scenes some flat displays, which show a strong familiarity with today's tablets. The sleek appearance for products and props used in science fiction movies has great influence in how hi-tech products look.*
*Stanley Kubrick / Metro-Goldwyn Mayer*

## Exploring product appearance

There is nothing wrong with smart products being futuristic. Most people want to celebrate the complex technology that is contained in them. However, when looking at home products, their ability to become a familiar element in the house becomes very important. In certain scenarios, there can be a disconnect between the futuristic appearance of smart products and the traditional style of the homes where they exist. Furthermore, many users are intimidated by

these bold appearances, and avoid using smart products because of fear of not being able to use them correctly, not to mention concerns about privacy.

There are some interesting approaches for smart products with a more integrated appearance. Amazon Echo and Google Home (Image 2), for example, offer sleeves for their products in different colors and a few material options. This allows to match the products with the décor of the room where they are placed. Yamaha Design Laboratory is exploring a more integrated and interactive approach for smart products, as shown in their concept series “Stepping Out of the Slate.” One of their concepts, named RhythmBot (Image 3), is a set of percussion objects that are interconnected, as well as paying attention to the environment around them. When they detect music being played, they start creating simple patterns at the same tempo, complementing the music they hear. This is an interesting example of how products can become a more integrated part of the home.


*Image 2: Amazon’s Echo and Eco Dot, and Google’s Home and Home Mini. Amazon / Google*

*Image 3: RhythmBot by Yamaha Design Laboratory. Yamaha*

## Checho: a smart speaker with cultural identity

With these ideas in mind, a design concept named Checho was created to explore how smart devices can be presented in a way that is more aligned with traditional cultures, in this case Latinx. It is an example of how hi-tech products can have an appearance that echoes strong traditions and cultures. In a world where technology can be intimidating and alienating to users, Checho provides an integration of technological functionality with Latinx inspired materials and aesthetics.

### What is Checho?

Checho (Image 4) is a voice-controlled smart home hub that plays music, answers questions, makes calls, tells the news, sets lights and appliances, and performs many other tasks in and around the home. In similar fashion to Amazon Echo and Google Home, a simple “Oye Checho” will wake up the device, so that the user can ask it questions or control systems in the house.

*Image 4: Checho smart speaker with Latinx cultural identity.*

### Checho's name

The name Checho (pronunced Ché-Chó) reflects the blend of Guatemalan and US cultures: it combines "Chapín", a demonym for people from Guatemala, with "Echo", one of the most widely used name for smart home devices.

Chapín + Echo = Checho

### Checho's role in the home

Having someone around the home who can give a hand is very common in Lanitx cultures, whether they are a grandchild, a neighbor, or a jack of all trades. In today's homes, smart hubs are designed to provide information, manage devices and even to keep someone company, all thanks to artificial intelligence and smart network systems. Although there is some similarity in these roles, some people do not feel comfortable around smart products. They find these devices foreign, unfriendly, and complicated.

### Finding the right form and materials

Checho's appearance takes several components from Guatemalan culture, as to make it more familiar. First, its general appearance is based on traditional jars and vases that are typical of Guatemala (Image 5). The shape is quite organic and shows a wider base, which stands out from most smart speakers, which have geometric shapes such as cylinders and spheres. Another key component is a triangular footprint. This detail was key to give "a face" to the device. Just like when talking to someone frequently involves face-to-face interaction, Checho clearly shows a front face, which helps to give it a stronger identity and presence in the home.

*Image 5: Preliminary form studies, modeled and rendered in Fusion 360.*

Material selection is also a key detail in Checho's identity. Plastic didn't seem like a choice that would resonate with a traditional culture such as Guatemala. Wood and fabric were better choices for the natural details that they provide. They also seem to sit cozier around the home and provide an extra level of decoration. While materials for any product can vary constantly in terms of colors, textures and finishes, it was important to present Checho as a device made out of traditional materials. This provides a contrast with most electronic devices made out of plastic.

Checho's internal components include multiple microphones, high-fidelity speakers, and an AI communication system that processes information and manages other connected devices. On the outside, a fabric screen in the front allows for sound to come out of the device without distortion. The top section includes holes with capacitive sensors, allowing to input gesture commands (Image 6).

*Image 6: Features can be controlled with voice as well as with finger gestures on the top panel.*

### Modeling and fabrication

While Checho is presented as a traditional product, its design and fabrication required significant use of technology. The shape was modeled with Autodesk Fusion 360. Using T-splines geometry was key for achieving an organic form that is fluid and elegant. Parametric modeling was used to add functional details, such as the opening for the screen, holes for the top panel, and internal cavity for electronic components. The model was fabricated via CNC milling. The model was divided into three sections: left, right, and top. Each section was milled out separately, one side at a time. Final touches included sanding the outer surface, and applying a finish coat. For the screen, a traditional Guatemalan fabric was fixed to a metal wire frame. The internal cavity contains all electronic components.

## Conclusion

As smart products continue to evolve and become more common in everyday, there is immense potential in providing them with stronger appearances and identities that connect better with their users. Designers and manufacturers cannot assume that a single style for a product will be appealing to all consumers. Paying attention to details related to culture, identity, and tradition, are just some of the many ways that smart products can be enhanced. This enhancement elevates their perceived value, and in some cases, it makes users feel more comfortable using them, as they recognize elements, shapes, materials, colors and motifs that resonate with their background. It is also a good way to cater to specific cultures and markets, without limiting the use of cutting-edge technology. Checho is an example of how a complex device such as a smart speaker, can develop a stronger identity, by focusing on its materials, shapes, and the symbolism that lies within them.